

Work Order ID 59905

Wednesday, June 16, 2010 1:00:52 PM



Page 1

Item ID: D350-748-101

Accept



Setup Start



Revision ID:

Item Name: Crosstube Installation, High Fwd

Stop



Start Date: 6/16/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 7/8/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: P Date: 10-6-14 Tooling: _____ Date: _____
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr

Revision Nbr

D350-748-141

Rev E

100

0.00



DC

DOCUMENT CONTROL

Memo

0.00

Document Control

Photocopy bluefile & type labels per PPPD350-748-101

CHG001

Sider/23

HJ for BG 10-9-23

110

0.00



CNC Bend 1

BENDING MACHINE - CROSSTUBES

Memo

0.00

CNC Delta 100 Bender

Bend tube as per Dwg D350-748-141 using CNC bender program D350F and Folio FT 22

DP

10-8-5

120

QC15- Crosstube Dimensional Check

0.00



QC

Memo

0.00

Quality Control

Sider/12

40

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No: DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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Run Start



Stop



Sequence ID/ Work Center, ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 Crosstubes	Crosstubes	0.00							
Crosstubes	Memo 1-Drill Tube as per Dwg D350-748-141 Using DT8876 A,B & C Drill Jigs, Set-up drill table as per QSI 010 2-Deburr 3-Engrave Part # and Batch # as per Dwg D350-748-141 4-Remove all marks from tube within limits of D350-748-141 5- Apply a light coat of LPS3 on the interior of tube Batch: <u>109956</u>	0.00							
140 QC	QC5- Inspect part completeness to step on W/O	0.00							
Quality Control	Memo CHECK 10 DEG HOLES WITH DT8876E (EUROCOPTER CLAMP)	0.00							

MB
10-08-16

- AWK 10-08-16

8/10/08/17

80

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

150



Outsource3

Outsource process - Cad plate

Outsource process-Cadplate per QSI017 4.1.9.1

0.00

Memo

0.00

Issue P/O: 12422
Stress relief at 375° for 5 hours
Magnetic Particle Inspect per ASTM E1444
Cadium Plate per AMS-QQ-P-416B, Class 1, Type 2
Embrittle relief at 375° for 8 hours, Chromate Treat
Possible Supplier: Southwest United Industries
Ensure Certificate of Conformity is attached

CZ 10/18/18 ①

160



Packaging

Packaging

Receive & Inspect for Damage & Mat'l Certs

0.00

Memo

0.00

Ensure certificate of conformity is attached

P 10/9/17 ①

170



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00

10 09 201

PTO

Dart Aerospace Ltd

W/O: 59905		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
10/9/14	175	NDT per QSI 038 before + after load testing per eng. this time only P/O: <u>L2557</u>	CL	10/9/14	①	U 10/9/14	G 10/9/14
		Reinspect + inspect	P	10/9/14	①		

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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180 	SprayPaint	0.00				<u>m/l</u>	<u>10</u>	<u>09</u>	<u>20</u> (1)
SprayPaint	Memo	0.00							
Spray Painting	1-Prime inside crosstube as per QSI 005 4.2 2-Prime Outside of Tube as per Dart QSI 005 4.2								
190 	QC14- Inspect Spray Paint	0.00							
QC	Memo	0.00							
Quality Control	Then, Wrap in plastic bag to protect from scratches								
200 	Crosstubes	0.00				<u>m/l</u>	<u>10</u>	<u>09</u>	<u>21</u> (1)
Crosstubes	Memo	0.00							
Crosstubes	1-Install Ground wire Insert, then insert screw and washer 2-Install Abraison strips as per Dwg D350-748-141 & QSI 035. 3-Install supports Using Dt8876 as per Dwg D350-748-141, Torque to 60-80 IN-LBS								

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Reference:

Cust Item ID:

Customer:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

210



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00

8/10/09/23

to

220



Packaging

Packaging

Pick Kit

0.00

Memo

0.00

8/10/09/23

230



QC

Quality Control

QC4- 100% Inspect kits for completeness

0.00

Memo

0.00

8/10/09/23

(X)

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Required Date: 7/8/2010 Req'd Qty: 1.00

Customer:



Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
240		0.00							
	Packaging								
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPP D350-748-101								
	Location: <u>104</u>								
	PPP Rev: <u>12</u>								
250									
	QC21- Final Inspection - Work Order Release	0.00							
QC	Memo	0.00							
Quality Control									

10/9/235

10/09/27

MF
10-9-24

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Picklist Print

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Page 1

Work Order ID: 59905

Parent Item: D350-748-101

Parent Item Name: Crosstube Installation, High Fwd

Start Date: 6/16/2010

Required Date: 7/8/2010

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A New Issue 06-07-05 JLM
 IPP Rev:B Update qty of MS21042L5 06-09-12 KJ
 IPP Rev:C Rev B 07-11-15 DD
 IPP Rev D Combined manufacturing 08.04.02 EC verified by: DD
 IPP Rev:E 08-06-24 revD as per dwg DD verified by:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D350-748-141TRN		Manufactured	No			110	Each	5.0000	1	1			
Crosstube Turning Detail													

Location

LG

B59329
 55295
 55297
 55298
 55299
 55300

Loc Qty

1
 1
 1
 1
 1

Loc Code

DP

10-8-5

ALS4-1032-225

Purchased

No

200

Each

6,529.000

1

1

Insert

Location

PK011

110768

Loc Qty

6529
 6529

Loc Code

AN960JD10

NAS1149D0363J Purchased

No

200

Each

0.0000

1

1

Washer

B# 105792

W 10 09 21

W 10 09 21

W/O:		WORK ORDER CHANGES					
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Page 2

Work Order ID: 59905

Parent Item: D350-748-101

Parent Item Name: Crosstube Installation, High Fwd

Start Date: 6/16/2010

Required Date: 7/8/2010

Start Qty: 1.00

Required Qty: 1.00

D2856-400

Manufactured No

200 f

238.2388

1.181

1.243158



Abraison Strip

Location

Loc Qty

Loc Code

ST403

238.2388

50593

43.4568

56626

194.782

Manufactured No

200 Each

32.0000

4

4

D3500-1



Saddle

Location

Loc Qty

Loc Code

ST425

32

52326

6

55605

26

Manufactured No

200 Each

64.0000

2

2

D3502-1



Support

Location

Loc Qty

Loc Code

ST066

64

47120

1

50287

38

52903

25

Purchased No

200 Each

101.0000

2

2

MS21920-20



Clamp (per MIL-DTL-8783C)

Location

Loc Qty

Loc Code

LG

101

112624

24

112793

3

114687

50

114779

24

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Shop Packet Print

Page 2

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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Parent Item Name: Crosstube Installation, High Fwd

Start Date: 6/16/2010

Required Date: 7/8/2010

Start Qty: 1.00

Required Qty: 1.00

MS27039-1-10

Purchased

No

200

Each

137.0000

1

1



Screw



10.09.21

Location

Loc Qty

Loc Code

ST291

137

112794

37

112940

100

AN4-41A

Purchased

No

220

Each

226.0000

8

8



Bolt



✓

Location

Loc Qty

Loc Code

ST360

226

111424

26

113359

100

114941

100

AN4-6A

Purchased

No

220

Each

1,121.000

16

16



Bolt



1114941

6/10/23

Location

Loc Qty

Loc Code

ST356

1121

112933

96

113149

522

114523

2

114615

1

114941

500

1114941

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Parent Item Name: Crosstube Installation, High Fwd

Start Date: 6/16/2010

Required Date: 7/8/2010

Start Qty: 1.00

Required Qty: 1.00

AN5-32A

Purchased

No

220

Each

178.0000

4

4

Bolt

Location

Loc Qty

Loc Code

ST340

178

113121

28

114056

100

114405

50

AN960ID416

NAS1149D0463J

Purchased

No

220

Each

18.0000

32

32

Washer

Location

Loc Qty

Loc Code

ST357

18

107939

18

AN960ID516

NAS1149D0563J

Purchased

No

220

Each

0.0000

8

18

Washer

D3501-1

Manufactured

No

220

Each

478.0000

16

16

Bushing

Location

Loc Qty

Loc Code

ST066

478

45402

15

45918

159

48268

204

53779

100

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Dart Aerospace Ltd

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Start Date: 6/16/2010

Required Date: 7/8/2010

Start Qty: 1.00

Required Qty: 1.00

MS21042L4

Purchased

No

220

Each

3,188.000

24

24



Nut



M/16/08

Lu

Location

Loc Qty

Loc Code

ST139

2

111827

2

ST300

3186

113422

68

114523

110

114718

1000

114784

2000

9063

8

MS21042L5

Purchased

No

220

Each

695.0000

4

4



Nut



M/16/06

C-10/8/23

Location

Loc Qty

Loc Code

ST139

500

114813

500

ST300

195

114449

195

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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

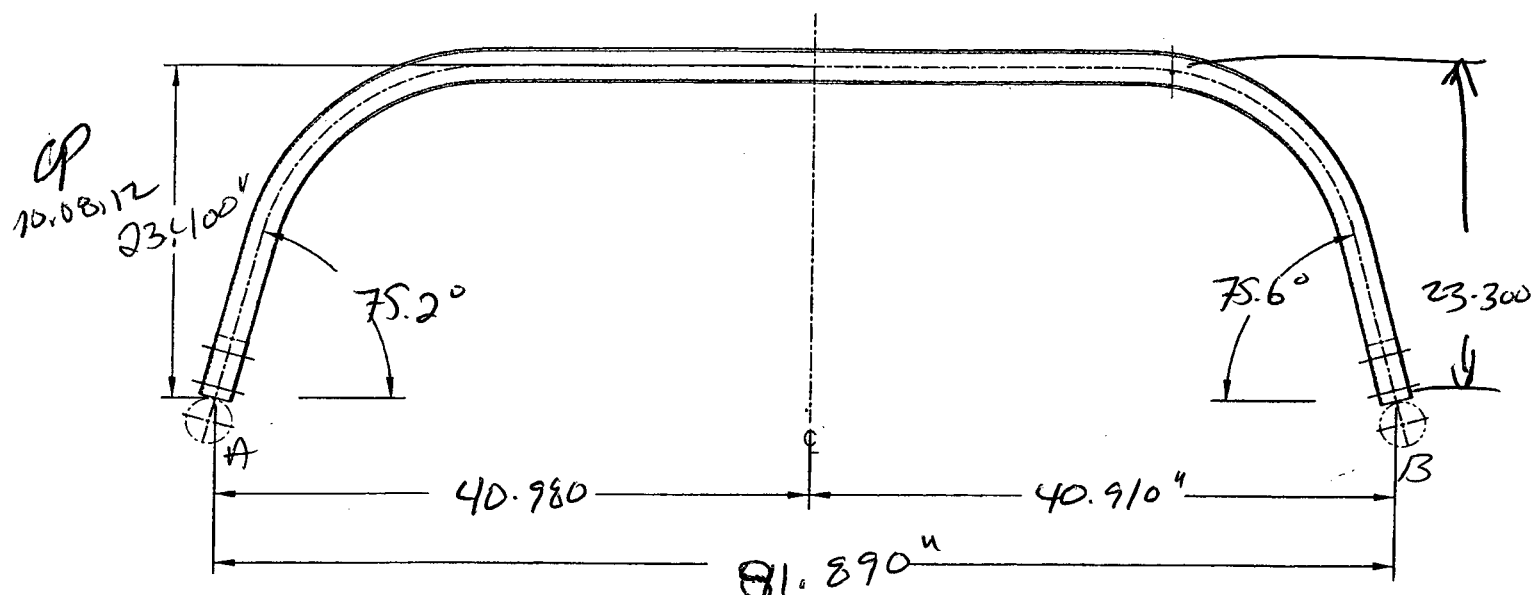
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DART AEROSPACE LTD		Work Order:	59905
Description: Crosstube High Fwd (AS350/355)		Part Number:	D350-748-101
Inspection Dwg: D350-748-141 Rev: D		Page 1 of 1	

Required Dimension	Min	Max
Height	23.13	23.37
1/2 Span	40.78	41.02
Angle	75	77
Total Span	81.56	82.04



Comments
twist is $0.115''$
OK CP 10.08.12

QC15 Inspection	<i>S</i>
Date	10/08/12

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	<i>[Signature]</i>

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Item	Qty -141	Part Number	Description
1	X	D350-748-141	CROSSTUBE ASSEMBLY (AS 350/355 HI FWD)
2	1	D6017-115	CROSSTUBE
3	2	D3502-1	SUPPORT
4	2	D2856-400-710	ABRASION STRIP
5	1	AELS-1032-225	INSERT
6	1	NAS1149D0363J	WASHER (OR AN960JD10)
7	2	MS21920-20	CLAMP (PER DART SPEC. M-MS21920-20)
8	1	MS27039-1-10	SCREW

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6017-115
FINISHED LENGTH = 110.270±0.06
- 2) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2
CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D350-748-141" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 30.45 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.297 HOLE.
- 9) BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING.
- 12) INSTALL D2856-400-710 ABRASION STRIPS WITH A GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.
- 13) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.
- 14) TORQUE CLAMPS 60 TO 80 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 59205
B210-6-16

RELEASED
R 2009-10-29 D

E	REVISE GENERAL NOTES; UPDATE TO CURRENT ADD STANDARDS; RELOCATED FLAG #6 PER PAR 08-046 (ZN A6-3); TOLERANCES (ZN C6-3, D1-3)	RF	09.09.30
D	MAG. PARTICLE AND CAD PLATE AS MFD.	CP	06.10.31
C	ADD CAD PLATING	CP	06.08.14
B	ADD D6017-115 & PRIME AND PAINT	CP	06.06.30
A	NEW ISSUE	CP	06.03.31
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF	DRAWING NO.	REV. E
CHECKED	RF	D350-748-141	SHEET 1 OF 4
MFG. APPR.	RF	TITLE	SCALE
APPROVED	RF	CROSSTUBE (AS 350/355 HI FWD)	NTS
DE APPR.	RF	COPYRIGHT © 2006 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DATE	09.09.30		

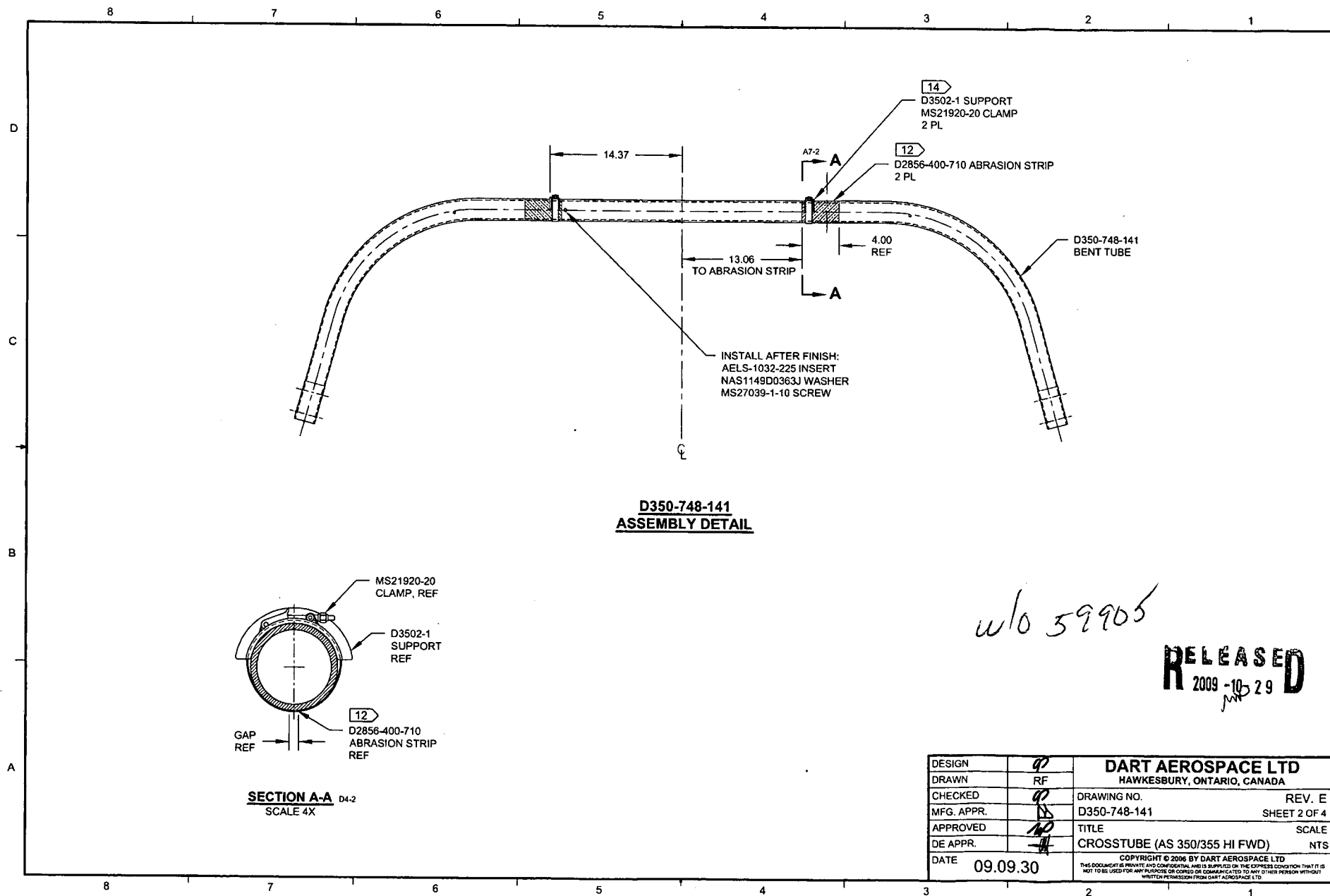
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

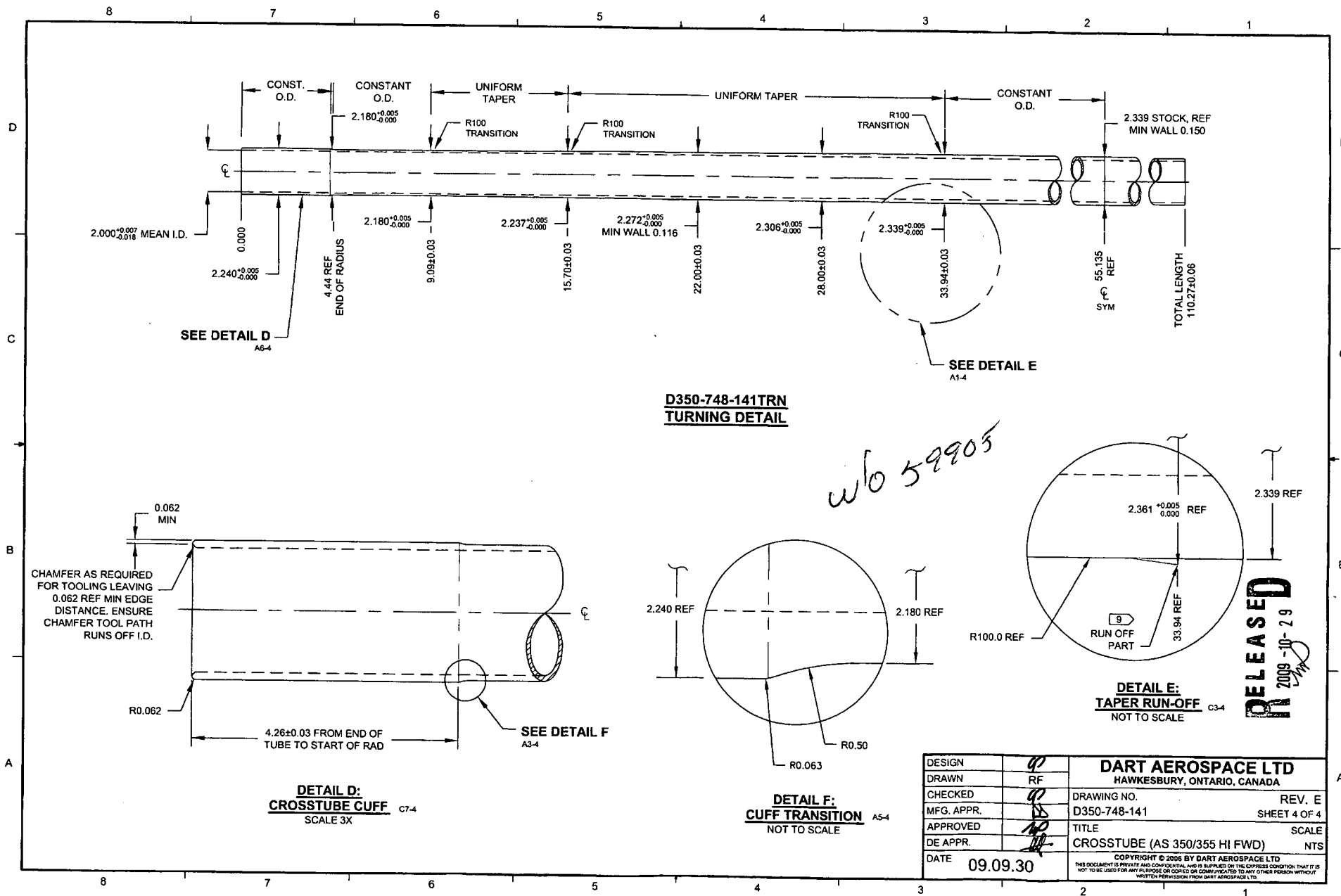
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

**CERTIFICATE OF
CONFORMANCE**

**CADORATH PLATING CO. LTD.
2150 LOGAN AVENUE
WINNIPEG, MANITOBA R2J-0J1**

DATE: Aug-31-2010

**CONSIGNED TO: Dart Aerospace Ltd.
1270 Aberdeen St
Hawksbury, ON K6A 1K7**

W/O #: 97909

INVOICE #: 51056

**CONTRACT OR
PURCHASE ORDER # PO12422**

DESCRIPTION: SKID

QTY 1

P/N # d350-748-101

S/N # B59905

**STRESS RELIEF BAKE @ 375 DEG. HEAT CHART #10-920. MPI IAW
ASTM-E-1444. CADMIUM PLATED IAW AMS-QQ-P-416C, TYPE 2
YELLOW, CLASS 2. BAKE HEAT CHART #10-916.**

**CERTIFICATE: I certify that the items indicated here on have
been inspected and tested and conform to all specifications
and requirements detailed on the contract or purchase order.**

Approved Inspector:



A large, stylized handwritten signature in black ink.

13 59905
13 60815
13 59907
13 60816



REC. 73
DEFLECTION
TEST



LIQUID PENETRANT TEST REPORT

P- 15189

CLIENT DART Aerospace DATE Sept 13-2010 PAGE 1 OF 1
ATTENTION LINDA/CHANTAL ACUREN JOB NO. 108-10-0838
ADDRESS 1270 ADELSEEN STREET. POWO No. 12422
HAWKESBURY ON WORK LOCATION HAWKESBURY PLANT
KOH 1K7 ACCEPTANCE STD. ASTM 1417 REV./DATE 2007
PROJECT F.P.I. on CROSS TUBES
ITEM(S) EXAMINED 11

JOB DESCRIPTION PROCEDURE No. LT-0002 REV./DATE --- TECHNIQUE No. LT-0002 REV./DATE ---
PART NO. --- MATERIAL STEEL THICKNESS ---
SCOPE WET FLOWESCENT LIQUID PENETRANT
INSPECTION CARRIED OUT 100% EXTERNAL.

TEST DETAILS

METHOD ☒ FLUORESCENT ☐ VISIBLE ☐ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EMULSIFIED
FAMILY BRAND MAGNAFLUX BLACK LIGHT S/N 16459 ☐ OUTPUT > 1000 μ W/cm² ☐ AMBIENT < 2 fc
PENETRANT 2-L07 MINIMUM DWELL TIME 45 MIN. LIGHTING EQUIP. ☐ FLASHLIGHT ☐ TROUBLELIGHT ☐ OUTPUT > 100 fc @ SURFACE
PENETRANT REMOVER H2O MINIMUM DRY TIME >10 MIN. OTHER LAB. NO.
DEVELOPER SKD 52 MINIMUM DWELL TIME 10 MIN. LIGHT METER S/N 1098866 CAL DUE DATE OCT-1-2010
DEVELOPER TYPE ☒ NON AQUEOUS ☐ AQUEOUS ☐ DRY

TEST SURFACE

SURFACE CONDITION ☐ AS GROUND ☐ AS WELDED ☐ MACHINED ☐ SHOT BLASTED ☒ CLEAN BARE METAL
SURFACE TEMPERATURE ☐ < -4°C/ 20°F ☐ -4°C/ 20°F TO 10°C/ 50°F ☒ 10°C/ 50°F TO 52°C/ 125°F ☐ > 52°C/ 125°F

RESULTS- (☐ METRIC ☐ IMPERIAL)

1 - Cross Tube W.O. 59805	✓
1 - Cross Tube W.O. 60815	✓
1 - Cross Tube W.O. 59907	✓
1 - Cross Tube W.O. 60816	✓
1 - Cross Tube W.O. 59905	✓
1 - Cross Tube W.O. 60820	✓
1 - Cross Tube W.O. 60821	✓
1 - Cross Tube W.O. 60822	✓
1 - Cross Tube W.O. 60817	✓
1 - Cross Tube W.O. 60818	✓
1 - Cross Tube W.O. 59904	✓
1 - Cross Tube W.O. 59906	✓

- EXAMINATION WAS COMPLETED PRIOR TO DEFLECTION TESTING

10-09-20

Scope of Services

The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care

In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES

CLIENT REPRESENTATIVE <u>Zan Tittley</u>	SIGNATURE <u>[Signature]</u>	DTR # <u>E63387</u>
TECHNICIAN (SIGNATURE): <u>[Signature]</u>	REPORT REVIEWED BY:	NAME INITIALS
NAME (PRINT): <u>Mike Johnston</u>	1 ST TECHNICIAN	2 ND TECHNICIAN
CGSB LEVEL <u>II</u> SNT LEVEL <u>---</u>	CGSB LEVEL <u>---</u> SNT LEVEL <u>---</u>	
CGSB REG. No <u>6606</u>	CGSB REG. No <u>---</u>	



LIQUID PENETRANT TEST REPORT

P- 15191

CLIENT	<u>DART AEROSPACE</u>	DATE	<u>SEP 13-2010</u>	PAGE	<u>1</u> OF <u>1</u>
ATTENTION	<u>LINDA/CHANTEL</u>	ACUREN JOB NO.	<u>188-10-0838</u>	TIME	AM <input checked="" type="checkbox"/> PM <input type="checkbox"/>
ADDRESS	<u>1270 ABELDEEN STREET</u>	PO/NO No.	<u>12422</u>		
	<u>HAWKESBURY, ON.</u>	WORK LOCATION	<u>HAWKESBURY PLANT</u>		
	<u>KOH IK7</u>	ACCEPTANCE STD.	<u>ASTM 1417</u>	REV./DATE	<u>2007</u>
PROJECT	<u>F.P.I.</u>		<u>ON CROSS TUBES</u>		
ITEM(S) EXAMINED	<u>12</u>				

JOB DESCRIPTION	PROCEDURE NO. LT <u>0002</u> REV./DATE <u>-</u>	TECHNIQUE NO. LT <u>1417</u> REV./DATE <u>-</u>
PART NO.	MATERIAL	THICKNESS
	<u>STEEL</u>	<u>-</u>
SCOPE	<u>WET FLOUORESCENT LIQUID PENE TRANT</u>	
	<u>INSPECTION CARRIED OUT 100% EXTERNAL</u>	

TEST DETAILS					
METHOD	<input checked="" type="checkbox"/> FLUORESCENT	<input type="checkbox"/> VISIBLE	<input checked="" type="checkbox"/> WATER WASH	<input type="checkbox"/> SOLVENT REMOVABLE	<input type="checkbox"/> POST EMULSIFIED
FAMILY BRAND	<u>MAGNAFLUX</u>		BLACK LIGHT S/N	<u>16459</u>	<input type="checkbox"/> OUTPUT > 1000 μ W/CM ²
PENETRANT	<u>2L07</u>	MINIMUM DWELL TIME	<u>45</u>	MIN.	<input type="checkbox"/> FLASHLIGHT <input type="checkbox"/> TROUBLELIGHT
PENETRANT REMOVER	<u>H20</u>	MINIMUM DRY TIME	<u>>10</u>	MIN.	<input type="checkbox"/> OUTPUT > 100 fc @ SURFACE
DEVELOPER	<u>SKD 52</u>	MINIMUM DWELL TIME	<u>10</u>	MIN.	OTHER <u>LAB NO</u>
DEVELOPER TYPE	<input checked="" type="checkbox"/> NON AQUEOUS	<input type="checkbox"/> AQUEOUS	<input type="checkbox"/> DRY	LIGHT METER S/N	<u>1098866</u>
				CAL DUE DATE	<u>OCT 19 2010</u>

TEST SURFACE					
SURFACE CONDITION	<input type="checkbox"/> AS GROUND	<input type="checkbox"/> AS WELDED	<input checked="" type="checkbox"/> MACHINED	<input type="checkbox"/> SHOT BLASTED	<input checked="" type="checkbox"/> CLEAN BARE METAL
SURFACE TEMPERATURE	<input type="checkbox"/> < - 4°C/ 20°F	<input type="checkbox"/> - 4°C/ 20°F TO 10°C/50°F	<input type="checkbox"/> 10°C/50°F TO 52°C/125°F	<input type="checkbox"/> > 52°C/125°F	

RESULTS- (<input type="checkbox"/> METRIC <input type="checkbox"/> IMPERIAL)	
<u>1 - CROSS TUBE W.O. 59905</u> ✓	<u>- EXAMINATION WAS COMPLETED</u>
<u>1 - CROSS TUBE W.O. 60815</u> ✓	
<u>1 - CROSS TUBE W.O. 59907</u> ✓	
<u>1 - CROSS TUBE W.O. 60816</u> ✓	
<u>1 - CROSS TUBE W.O. 60820</u> ✓	
<u>1 - CROSS TUBE W.O. 60821</u> ✓	
<u>1 - CROSS TUBE W.O. 60822</u> ✓	
<u>1 - CROSS TUBE W.O. 60817</u> ✓	
<u>1 - CROSS TUBE W.O. 60818</u> ✓	
<u>1 - CROSS TUBE W.O. 59904</u> ✓	
<u>1 - CROSS TUBE W.O. 59906</u> ✓	
	<u>TESTING</u>
	<u>MM 12 09 20</u>

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SIGNATURES

CLIENT REPRESENTATIVE	<u>John Titler</u>	DTR #	<u>E63387</u>
TECHNICIAN (SIGNATURE):	<u>Mike Johnston</u>	REPORT REVIEWED BY:	
NAME (PRINT):	<u>Mike Johnston</u>	NAME	INITIALS
CGSB LEVEL	<u>1ST TECHNICIAN</u>	CGSB LEVEL	<u>2ND TECHNICIAN</u>
CGSB REG. No	<u>6606</u>	CGSB REG. No	<u>6606</u>

5.0 PARTS LIST

Qty -101	Qty -201	Part Number	Description
X		D350-748-101	CROSSTUBE INSTALLATION, AS 350/355 HIGH FWD
	X	D350-748-201	CROSSTUBE INSTALLATION, AS 350/355 HIGH AFT
1		D350-748-141	CROSSTUBE ASSEMBLY, AS 350/355 HIGH FWD
	1	D350-748-241	CROSSTUBE ASSEMBLY, AS 350/355 HIGH AFT
*2	*2	D3502-1	SUPPORT
*2	*2	D2856-400-710	ABRASION STRIP
*1	*1	AELS-1032-225	INSERT
*2	*2	MS21920-20	CLAMP
*1	*1	MS27039-1-10	SCREW
*1	*1	AN960JD10	WASHER
4	4	D3500-1	SADDLE
16	16	D3501-1	BUSHING
16	16	AN4-6A	BOLT
8	8	AN4-41A	BOLT
4	4	AN5-32A	BOLT
32	32	AN960JD416	WASHER
8	8	AN960JD516	WASHER
24	24	MS21042L4	NUT (OR MS21042-4)
4	4	MS21042L5	NUT (OR MS21042-5)

* REFERENCE ONLY. PARTS ARE INCLUDED IN D350-748-141/241 ASSEMBLIES ABOVE

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Revision: B

Date: 07.06.15